BW4 / BW5
Oil-Fired Water Boilers

Product Data

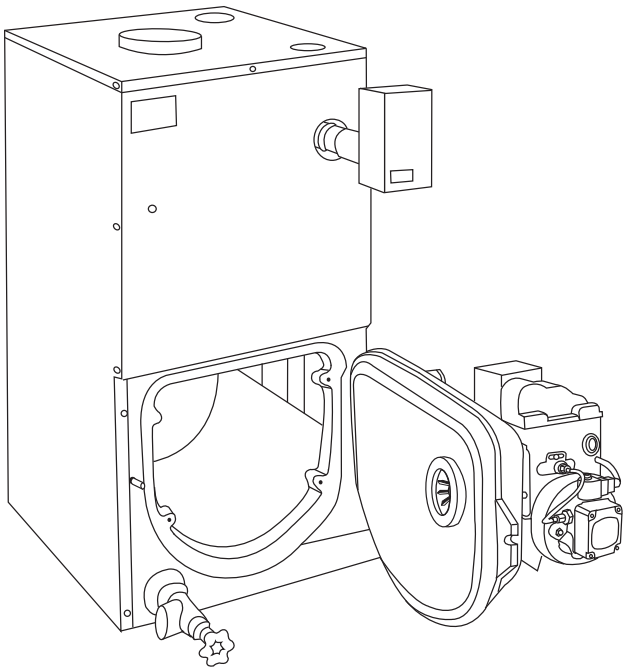

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Fig. 1 – Model BW4/BW5

ASME

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The modern design and attractive appearance of the models BW4 and BW5 Oil-Fired Water Boilers make them ideal for installation in any area. The boilers are shipped fully assembled and wired, including all controls except barometric regulator and circulator pump. The compact 22-gauge steel cabinet has a baked-on enamel paint finish for durability. A 1-in. layer of thermal insulation is applied inside the jacket for protection and thermal efficiency. The flame retention head burner provides efficient fuel usage. A wet base cast iron block with thermal pins surrounds the combustion area for better heat transfer from flue gases to water.

FEATURES

RANGE OF CAPACITIES — BW4 and BW5 boilers are available in sizes 91,000 to 280,000 BTUH.

BAROMETRIC DRAFT CONTROL — The factory-supplied barometric draft control can easily be installed in the vent pipe for optimum draft and combustion efficiency.

CONTROLS — Factory-wired controls on units with tankless hot water coil include a triple aquastat relay with high/low limit protection and circulator control. A factory accessory kit is available for protection against low water operation which is required by code.

COMBINATION TRANSFORMER AQUASTAT — A 24-v transformer is combined with the aquastat assembly. The transformer will supply power efficient to power a 3-zone system on BW5 models. Factory-installed combination pressure/temperature gauge and a pressure relief valve.

COIL OPTIONS — Units are available with or without tankless heater coil. The coil provides a supply of hot water for normal domestic purposes or an accessory tankless heater coil can be added later.

FACTORY INSTALLED FEATURES — A factory-installed drain is provided should the boiler ever need to be drained. Oil primary control prevents boiler in operation in the event of flame loss.

SECTIONS TESTED — Each section is hydrostatically tested to 50 psig. Individual sections are tested to 125 psig at factory. Assembled sections are tested to 75 psig at the factory. The maximum allowable pressure is 50 psig for hot water boilers.

EASE OF INSTALLATION — Circulator is shipped pre-wired with 6 ft bx conduit for easy installation for supply side pumping.

WARRANTY — The cast-iron sections are covered by a non-prorated 20-year warranty on the entire assembly. All other parts are covered by a 5-year limited warranty.

SOLENOID OIL VALVE — This provides cleaner burning and quieter operation. Valve is included on all burner types.

SWING BURNER DOOR — This unique design offers uninhibited access for set-ups, service, and maintaining the burner. Routine cleaning is also much easier.

MODEL NUMBER NOMENCLATURE

1	2	3	4	5	6	7–9	10–12	13	14	15–16
B	**W**	**4**	**B**	**A**	**H**	**000**	**091**	**A**	**A**	**AA**
Product	Type	Combustion/ Ignition	Model Code	Electrical	Fuel	Cooling	Heating Size	Labeling	Series	Variations
B – Boiler	W – Water	4 – Oil Burner w/o Tankless Coil 5 – Oil Burner w/Tankless Coil	B – Beckett Burner R – Riello Burner	A – 110 to 125 60 Hz	N – Natural Gas		Btu Input (x1000)	A – Common Unit G – Canada Only (Oil)	A – Basic	AA – Standard

BOILER ACCESSORIES

BW4/BW5	
DESCRIPTION	PART NO.
Filltrol Package (up to 150,000 BTUH) (Includes Air Purge Extrol Tank and Fill Valve)	KBAFP0201DNK
Filltrol Package (over 150,000 BTUH input) (Includes Air Purge Extrol Tank and Fill Valve)	KBAFP0301DNK
Zone Valve – 3/4 in.	KBAZV0101DNK
Zone Valve – 1 in.	KBAZV0201DNK
High–Limit Control	KBAHL0101DNK
Tankless Water Heater Kit	KBATH0101DNK
Combustible Floor Base, 24'' x 30''	KBASB0301DNK
Low Water Cut–off Kit	KBALW0101DNK
Low Fire Rate Kit (FO Head) (91,000 BTUH input BW4B/BW5B)	KBALF0101DNK
Low Fire Rate Kit (F3 Head) (126,000 BTUH input BW4B/BW5B)	KBALF0201DNK

NOTE: Accessory High Limit Control is a strap–on aquastat used as an auxiliary limit or reverse acting circulator control.

DIMENSIONS

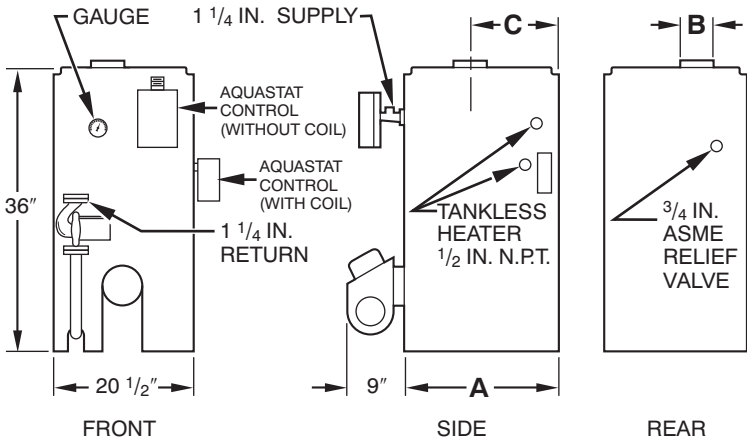

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Fig. 2 – Models BW4 and BW5

DIMENSIONS (IN.)

UNIT SIZE	A	B	C
140	14.5	6	8
210	17–3/4	6	9–5/8
280	21	6	11–1/2

CLEARANCES (IN.)

RIGHT SIDE	6*
LEFT SIDE	6
TOP	6
BACK	6
FRONT	6†
FLUE	18

* Clearance 18 in. for BW5.

† Service clearance requirement 24 in.

BECKETT OIL BURNER SPECIFICATIONS - BW4B/BW5B

BASE MODEL	BOILER INPUT (btuh)	DELEVAN OIL NOZZLE	FIRING RATE (gpm)	HEAD–ADJ. OR SETTING	LOW FIRE BAFFLE*	AIR SHUTTER	AIR BAND	STATIC PLATE (IN.)	PUMP PRESSURE
140	91,000	0.50–80 B	0.65	F0 1–1/8	Yes	10	0	3–5/8	175 psig†‡
	105,000	0.65–70 B	0.75	F3 1–1/8	Yes	10	0	3–1/2	140 psig
	140,000	0.85–70 B	1.00	F3 1–1/8	No	10	2	3–1/2	140 psig
210	126,000	0.75–80 A	0.90	F3 1–1/8	No	8	0	3–1/2	140 psig
	175,000	1.00–80 A	1.25	F6 1–1/8	No	10	0	3–3/8	140 psig
	210,000	1.25–80 A	1.50	F6 1–1/8	No	10	2	3–3/8	140 psig
280	168,000	1.00–60 B	1.20	V1–0	No	10	1.5	2–3/4	140 psig
	245,000	1.50–45 B	1.75	V1–2	No	10	4	2–3/4	140 psig
	280,000	1.65–60 B	2.00	V1–4	No	10	5	2–3/4	140 psig

* Low Fire Baffle included in loose parts bag, shipped with boiler.

† Pump is factory set at 140 psig. Raise pump pressure to 175 psig after installing low fire kit for 91,000 btuh input.

‡ Accessory Low Fire Kit required. Refer to Accessory Section and Performance Data Table.

RIELLO OIL BURNER SPECIFICATIONS - BW4R/BW5R

BASE MODEL	BOILER INPUT (btuh)	DELEVAN OIL NOZZLE	FIRING RATE (gpm)	TURBULATOR/AIR SHUTTER SETTING	OIL PUMP PRESSURE (PSIG)	OIL BURNER
140	91,000	0.50–70ºW	0.65	0.5 / 2.0	155	F–5
	105,000	0.65–70ºW	0.75	2.0 / 2.2	150	F–5
	140,000	0.85–70ºW	1.00	2.0 / 3.2	170	F–5
210	126,000	0.75–70ºW	0.90	1.5 / 2.6	160	F–5
	175,000	1.00–70ºW	1.25	2.5 / 3.8	170	F–5
	210,000	1.25–70ºW	1.50	4.0 / 7.0	175	F–5
280	245,000	1.50–70ºW	1.75	2.0 / 3.8	155	F–10
	280,000	1.75–70ºW	2.00	2.5 / 4.1	155	F–10

* All Riello 40 F5 and F10 oil burners are factory preset at 145 psig.

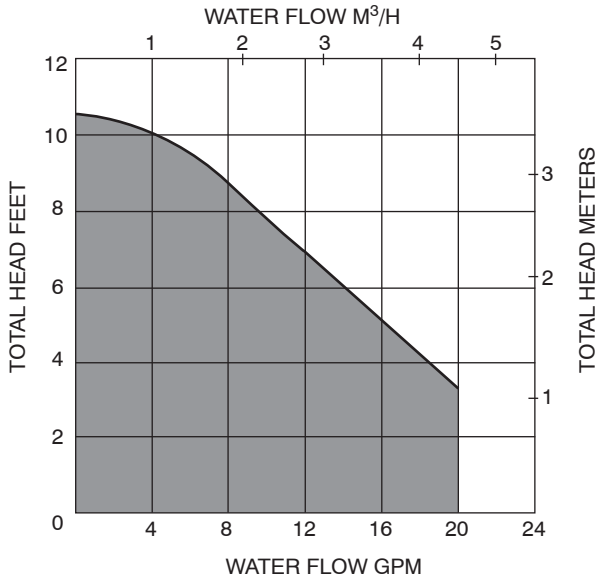

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Fig. 3 – Water Boiler Circulator Curve

ELECTRICAL DATA

ALL MODELS	
Voltage—Hertz—Phase	115 — 60 — 1
Minimum Branch Circuit Wire Size (AWG)	14
Maximum Fuse Size (Amps)	15
Control Circuit Power Available	40va–@ 24v

RATINGS AND PERFORMANCE

WITHOUT TANKLESS COIL	NO. SEC.	INPUT MBH*	HEATING CAPACITY† MBH*	NET I=B=R RATING MBH*	FIRING RATE GPH‡	A.F.U.E.**	MIN. CHIMNEY SIZE/HGT.	DIMENSIONS – IN			SHIP WGT.	TANKLESS HEATER G.P.M.††
								A	B	C		
BW4BAH140 BW4RAH140	3	91	80	70	0.65	86.3‡‡	8'' x 8'' x 15'	14–1/2	6	8	460	N/A
	3	105	92	80	0.75	85.2‡‡	8'' x 8'' x 15'	14–1/2	6	8	460	N/A
	3	140	119	103	1.00	83.4	8'' x 8'' x 15'	14–1/2	6	8	460	N/A
BW4BAH210 BW4RAH210	4	126	111	97	0.90	86.0‡‡	8'' x 8'' x 15'	17–3/4	6	9–5/8	533	N/A
	4	175	150	130	1.25	83.9	8'' x 8'' x 15'	17–3/4	6	9–5/8	533	N/A
	4	210	178	155	1.50	82.4	8'' x 8'' x 15'	17–3/4	6	9–5/8	533	N/A
BW4BAH280 BW4RAH280	5	168	147	128	1.20	86.5‡‡	8'' x 8'' x 15'	21	6	11–1/2	620	N/A
	5	245	209	182	1.75	83.6	8'' x 8'' x 15'	21	6	11–1/2	620	N/A
	5	280	236	205	2.00	82.0	8'' x 8'' x 20'	21	6	11–1/2	620	N/A

– Shaded areas are as shipped. Alternate inputs require a field–installed alternate oil nozzle – supplied with base model, or Accessory Low Fire Kit – required for 91,000 and 126,000 MBH inputs.

* MBH = 1,000 BTU per hour / BTU = British Thermal Unit

† Heating Capacity is based on a 13 percent CO2 with a –0.02 in. wc draft over fire and a #1 smoke or less. Testing was done in accordance with the D.O.E (Department of Energy) test procedure.

‡ GPH = Gallons per hour of oil at 140,000 BTU per gallon

** A.F.U.E. = Annual Fuel Utilization Efficiency based upon D.O.E. test procedure.

†† GPM = Gallons of water per minute, heated from 40° F to 140° F, with 200° F boiler water temperature, intermittent draw.

‡‡ As an Energy Star Partner, the manufacturer has determined that this product meets Energy Star guidelines for Energy Efficiency.

RATINGS AND PERFORMANCE

WITH TANKLESS COIL	NO. SEC.	INPUT MBH*	HEATING CAPACITY† MBH*	NET I=B=R RATING MBH*	FIRING RATE GPH‡	A.F.U.E.**	MIN. CHIMNEY SIZE/HGT.	DIMENSIONS – IN			SHIP WGT.	TANKLESS HEATER G.P.M.††
								A	B	C		
BW5BAH140 BW5RAH140	3	91	80	70	0.65	86.3‡‡	8'' x 8'' x 15'	14–1/2	6	8	470	2.90
	3	105	92	80	0.75	85.2‡‡	8'' x 8'' x 15'	14–1/2	6	8	470	3.00
	3	140	119	103	1.00	83.4	8'' x 8'' x 15'	14–1/2	6	8	470	3.25
BW5BAH210 BW5RAH210	4	126	111	97	0.90	86.0‡‡	8'' x 8'' x 15'	17–3/4	6	9–5/8	545	3.15
	4	175	150	130	1.25	83.9	8'' x 8'' x 15'	17–3/4	6	9–5/8	545	3.50
	4	210	178	155	1.50	82.4	8'' x 8'' x 15'	17–3/4	6	9–5/8	545	3.75
BW5BAH280 BW5RAH280	5	168	147	128	1.20	86.5‡‡	8'' x 8'' x 15'	21	6	11–1/2	630	3.45
	5	245	209	182	1.75	83.6	8'' x 8'' x 15'	21	6	11–1/2	630	4.00
	5	280	236	205	2.00	82.0	8'' x 8'' x 20'	21	6	11–1/2	630	4.25

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